ochraceous; anterior wings with two contiguous fuscous spots at centre of cell, a fuscous discocellular spot at end of cell, and five spots of the same colour in a curved submarginal series; posterior wings with two large black spots near costal margin, the outermost with a small fuscous spot beneath it, a small fuscous spot in cell, and a discocellular streak of the same colour at end of cell, and with the following blackish spots:—one beneath and near base of cell, two near abdominal margin, one near anal angle, and four in a curved series beyond cell, and with a double series of pale fuscous, linear, submarginal spots; fringe of both wings fuscous. Body and legs more or less concolorous with wings.

Exp. wings 20 millim.

Hab. Malacca (*coll. Staudinger*).

Polyommatus bagus, n. sp.

Female. Wings above closely resembling those of the same sex of *P. bæticus*. Wings beneath pale brownish ochraceous, with the following linear brownish fasciæ margined with greyish:—both wings with two at end of cells and two submarginal fasciæ, the innermost broadest; posterior wings with two large, marginal, blackish spots, containing a few scattered greenish scales and inwardly margined with pale reddish ochraceous, separated by the lower median nervule. Body above more or less concolorous with wings, beneath with legs greyish white; legs more or less streaked with brownish.

Exp. wings, ♀ 30 millim.

Hab. Province Wellesley (*Birch, coll. Distant*).

BIBLIOGRAPHICAL NOTICE.

Memoirs of the Geological Survey of India. Palæontologia Indica, being Figures and Descriptions of the Organic Remains procured during the Progress of the Geological Survey of India. Ser. iv. *Indian Pretertiary Vertebrata.* Vol. I. Part 5. *The Reptilia and Amphibia of the Maleri and Denwa Groups.* By R. Lydekker, B.A., F.G.S., &c. With 6 plates. Calcutta: Geological Survey Office. London: Trübner & Co. 1885.

Reptilian fossils have been obtained from the Maleri rocks of India in two localities, Maleri (about thirty miles north of the Godaveri, in the central provinces) and in the coal-field of South Rewah. The

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with the costal nervure. The typical specimen, however, is not only unique, but also not my own property, thus preventing that detailed structural examination which is necessary for exact generic determination, but which is liable at the same time to injure the specimen.

age of these beds is determined as Upper Trias. The fauna described includes *Hyperodapedon Huxleyi*, a species of *Belodon*, *Parasuchus Hislopi*, a Dinosaur, a *Mastodonsaurus*, and some other forms. *Hyperodapedon*, as originally described from Scotch specimens, had a skull about 7 inches long and 5 inches wide; but the new species is estimated to have had the skull 20 inches long and a skeleton fully 17 feet in length. The evidence for the existence of this animal consists in bones of the skull, vertebræ, and bones of the extremities. The most important remains are the palato-maxillary bones, some of which are of about the size of those of *Hyperodapedon Gordoni*.

But in the largest specimen the palatine teeth consist of three main rows, with a few teeth indicating a fourth row. The first row of maxillary teeth is regular in arrangement, but the external rows are so irregular that the number of rows cannot be counted, though it appears to be six. In all essential characters the resemblances of this type to *Hatteria* are remarkable. There are fragments of mandible which also show characters like those of *Hatteria*, and the worn condition of the teeth in mandible and skull indicate a backward and forward motion of the jaw. The teeth penetrate deeply into the bone; those which border the palato-maxillary groove of the skull were worn down by the marginal rows of mandibular teeth, and the second and third rows of palatine teeth were worn by the lateral mandibular teeth.

The thoracic vertebræ show articular surfaces for the intervertebral wedge-bones or intercentra, such as characterize *Hatteria*. The neural arch, however, was not anchylosed to the centrum; it carried the dorsal half of the tubercle for the rib.

Considering the large size of the animal, it is remarkable that the correspondence to *Hatteria* should extend to the sacral vertebræ, the shoulder-girdle, humerus, ulna, ilium, and other bones, which are provisionally referred to this genus on account of the resemblance to that type.

Mr. Lydekker remarks that the presence of the median ridge in the palato-maxillary bones of the remains from South Rewah may perhaps indicate a distinct species from that found at Maleri.

The *Hyperodapedon Huxleyi* is distinguished from the British species by its larger size and by having a greater number of rows of teeth in the maxillary than in the palatine bone. This condition is the reverse of that seen in *Hyperodapedon Gordoni*. Other distinctive characters are the triangular cross section of the teeth of the first rows of the palatine and maxillary series, the absence of teeth on the inner surface of the palatine bone, and a steady increase in size of teeth from the front to the back of the jaws.

The author considers that the characters of the fossils described indicate a genetic connexion between the Rhynchocephalia, through *Endothiodon*, and the more typical Anomodontia. The well-developed articular ends of the limb-bones are taken to indicate that these animals lived on land.

The specimens referred to *Belodon* were found at Tiki, in South

Rewah. They consist of a basioccipital and basisphenoid, with minute fragments of the maxillary bone and a dorsal vertebra. The evidence of the genus *Parasuchus*, a crocodilian type from Maleri, consists of similar remains rather better preserved, and includes the articular part of the quadrate bone, a fragment of the premaxillary, and what the author regards as dermal scutes. It is considered that some other fragments indicate a Dinosaur; but the remains are not of that conclusive character that might be desired, consisting of a fragment of a dorsal vertebra of Teleosaurian type, a caudal vertebra, and a phalange. The phalange has a more Dinosaurian aspect than the other bones. There are some teeth, referred to the same type, which resemble the hinder teeth of *Belodon* as well as *Thecodontosaurus*.

The remains of *Mastodonsaurus* are said to consist of the right supratemporal bone found in the Denwa group, on the Denwa river, in the Satpura district. Other fragmentary specimens are stated to be allied to *Metopias* of Von Meyer and *Capitosaurus* of Münster. A portion of a maxillary bone shows teeth with folded enamel, each having a quadrate base with a pulp-cavity. There are also fragments of cranial bones, mandible, and vertebræ. All these remains are of so fragmentary a character that more than ordinary courage was needed to refer to them at all, and the conclusions adopted are necessarily speculative. The volume concludes with a list of memoirs which relate to these fossils, followed by a synopsis of the Pretertiary Indian Vertebrata.

MISCELLANEOUS.

Some new Infusoria from American Fresh Waters.

In the 'Annals' for February last, under the above title, the present writer published an article in which a new genus of Infusoria was formulated with the name *Diplomastax*, the word *Diplomestoma*, which I had selected and written in my MS., having been cancelled by the Editors under a misapprehension for which I gave them one excuse, it seems, by my mistake in writing "*Diplomastax*" in the explanation of the plate, and another by deriving *Diplomestoma* in an utterly impossible way, according to the editorial note in the April number of the magazine. Therefore, since *Diplomastax* is preoccupied and the derivation of *Diplomestoma* is offensive to the purist, I withdraw it and substitute the name *Dallasia*, in honour of Mr. W. S. Dallas, F.L.S., Assistant Secretary of the Geological Society, to whom it affords me much pleasure to dedicate the genus, the name of the species described thus becoming *Dallasia frontata* instead of *Diplomestoma frontata*.

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